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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/942,669	08/31/2001	Hiroyuki Sawada	213431US2	7809

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EXAMINER	
VINCENT, SEAN E	
ART UNIT	**PAPER NUMBER**
1731	

DATE MAILED: 02/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/942,669	SAWADA ET AL.	
	Examiner	Art Unit	
	Sean E Vincent	1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 November 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1-14, 18-19 and 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fumiyoshi, JP No. 04-046024 in view of Sato et al, Patent Number: 5,228,894.

3. Fumiyoshi teaches the molding of softened glass into an optical part having an accurate surface corresponding to the molding surface of a higher temperature die in a pair of molding dies by maintaining the temperature difference between the two dies by a specified degree during cooling and curing of the glass (Fumiyoshi, Abstract, Page 1 , Purpose). He also teaches the first mold comprising a first concave surface and the second mold comprising a convex surface (Fumiyoshi, Page 7, Fig. 1 (a)); cooling the material until it reaches a temperature equal to or less than the glass transition temperature (Fumiyoshi, Page 3, Column 6, lines 30-40), and removing the cooled material from the first or second mold once cooling of the glass optical pad is completed (Fumiyoshi, Page 7, Fig. 1 (d)).

4. Fumiyoshi inherently teaches that in the cooling step, the second temperature of the second mold reaches the glass temperature prior to a time when a first temperature of the first mold reaches the glass transition temperature. He specifically teaches that one of the molds is coated with a high thermal conductivity coating (Fumiyoshi, Page Column 1 , lines 1-7),. therefore, because one mold is coated it will reach the glass transition temperature, Tg, before the other mold due to the increase in heat transfer caused by the high thermal conductivity coating.

Fumiyoshi also teaches that the molding apparatus may have an upper mold as well as a lower mold (Fumiyoshi, Page 8, Fig. 3).

5. Fumiyoshi does not teach that the pressing begins when the molds are at temperatures above the glass transition temperature. Before addressing this limitation, it is important to understand that the glass transition temperature is not an exact temperature even for different locations within the same glass sample. A teaching reference, Yoshida et al (US 6,105,395) col. 8, lines 43-60 is provided as evidence. Arbitrarily choosing a viscosity of 10^{13} poise as the viscosity corresponding to a glass transition temperature, as suggested by Yoshida et al, it can be seen from figure 5 of Sato et al. that the temperatures of the molds in Sato et al are well above the glass transition temperature when pressing begins. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to time the pressure application of Fumiyoshi to start when the molds are hotter than Tg because Sato et al taught that excellent release properties could be expected.

6. Fumiyoshi does not teach using the first mold as the upper mold and the second mold as the lower mold. However, as to claim 3, Sato et al teaches using a molding process where the first mold is the upper mold and the second mold is the lower mold (Sato, Column 6, Para. 2, Fig. 3). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to orient the molds of Fumiyoshi like those of Sato et al because it would not have had any material effect on the pressing operation and Sato et al taught the additional release benefits of their process.

7. With regard to claims 4-7, Fumiyoshi teaches that during the cooling process, the difference in temperature between the two molds is maintained at 10°C. Therefore, it is obvious

that when the second mold's second temperature reaches the glass transition temperature, Tg, the first temperature of the first mold is Tg + 5°C) or greater (Fumiyoshi, Page 5, Column 9, Figure 1 , Example 2, Column 2). Fumiyoshi teaches that applying a coating to a mold provides enhanced thermal conductivity (Fumiyoshi, Page 1, Column 1 , lines 1-7). If the second mold is the mold with the high thermal conductivity coating, it conducts heat at a faster rate than the mold without the coating. It also cools faster that the mold without the coating layer.

8. With regard to Claims 8-12, Fumiyoshi teaches that applying a coating to a mold provides enhanced thermal conductivity. Obviously, a mold coated with a high thermal conductivity coating would reach a cooler temperature before an uncoated mold such that the second temperature of the second mold is lower than the first temperature of the first mold at the end of the molding step.

9. With regard to Claims 13 and 14, Fumiyoshi teaches applying a coating to a mold that provides enhanced thermal conductivity. Obviously, a mold coated with a highly thermal conductive coating would typically reach a lower temperature than an uncoated mold such that the second temperature of the second molding surface is lower than the first temperature of the first mold throughout the molding step because the high thermal conductivity coating would provide enhanced removal of heat from the mold during the molding process. Also, the withdrawal of heat and/or the addition of heat to the molds will be enhanced by the thermal conductive coating on the mold. Thus, the temperature difference between them will become smaller over time.

10. With regard to Claim 18, Fumiyoshi teaches that when the second mold's second temperature reaches the glass transition temperature, the first temperature of the first mold is (Tg

+ 5°C) or greater (Fumiyoshi, Page 5, Column 9, Figure 1 , Example 2, Column 2). If the second mold is the mold with the high thermal conductivity coating, it is obvious that the second temperature of the second mold is lower than the first temperature of the first mold throughout the molding step, particularly during the portion of the molding step when the glass material is cooling. Note that during the initial pressing of the molding step, the mold with the high thermal conductivity coating will be higher than the mold without the coating because the mold with the coating heats up faster. Moreover, "throughout the molding step" as stated in claim 18 does not necessarily constitute that at every moment of the molding step, the second temperature of the second mold must be at a lower temperature than the first temperature of the first mold.

11. With regard to Claim 19, Fumiyoshi teaches that during the cooling process, the difference in temperature between the two molds is maintained at 10°C. Therefore, it is obvious that when the second mold's second temperature reaches the glass transition temperature, Tg, the first temperature of the first mold is (Tg + 5°C) or greater (Fumiyoshi, Page 5, Column 9, Figure 1 , Example 2, Column 2). Fumiyoshi teaches that applying a coating to a mold provides enhanced thermal conductivity (Fumiyoshi, Page 1 , Column 1 , lines 1-7). If the second mold is the mold with the high thermal conductivity coating, it conducts heat at a faster rate than the mold without the coating. It also cools faster that the mold without the high thermal conductivity coating layer. Moreover, note that the high thermal conductivity coated second mold should maintain a lower temperature than the first mold throughout the molding step.

12. With regard to Claim 21, Fumiyoshi teaches applying a coating to a mold provides enhanced thermal conductivity. Obviously, a high thermal conductivity coated mold would reach a cooler temperature before an uncoated mold such that the second temperature of the second

molding surface is lower than the first temperature of the first mold throughout the molding step. Also, the second mold should be at least 5 degrees centigrade lower than the first mold's first temperature during cooling because the molds are controlled to maintain a 10°C difference.

13. It would have been prima facie obvious at the time the invention was made to combine Sato et al's upper and lower molds with Fumiyoshi's lens molding method to enhance the versatility of the molding process and to permit the production of lenses with desired optical characteristics.

14. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fumiyoshi JP 4-046024 in view of Sato 5228894.

15. Fumiyoshi teaches the applicant's claimed invention. See the above rejection for Fumiyoshi's teachings. However, Fumiyoshi does not teach claim 3 or claim 15.

16. However, Sato et al teaches where the first mold comprises an upper mold and the second mold comprises a lower mold, following the molding pressure, a secondary pressure smaller than the molding pressure is applied (Sato, Figure 5, "Load on the upper mold" and "Load on the lower mold").

17. It would have been prima facie obvious at the time the invention was made to combine Sato et al's smaller secondary pressure with Fumiyoshi's lens molding method because both Fumiyoshi and Sato teach similar methods wherein the upper and lower molds are held at differing temperatures and the using the second pressing step would permit the required degree of surface accuracy to be achieved for the lens as taught by Sato (col. 10, lines 65-68).

18. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fumiyoshi JP 4-046024 in view of Sato 5228894 and Takeshi JP 8-133767.

19. Fumiyoshi in view of Sato teach the applicant's claimed invention. See the 103(a) rejections above for Fumiyoshi's teachings and Fumiyoshi in view of Sato et al's teachings. However, Fumiyoshi in view of Sato et al do not teach claim 16.

20. However, Takeshi (Takeshi, Page 5, Column 8, lines 30-31) teaches that b = 5.5mm and a = 1 .2 mm, where a is the center thickness of the glass optical element and b is the peripheral thickness of the glass optical element. At the given measurements, b/a is greater than 1.5 (b/a with the given measurements is 4.83).

21. It would have been prima facie obvious at the time the invention was made to combine Takeshi's center and peripheral thickness measurements with Fumiyoshi in view of Sato et al's lens molding method because using Takeshi's center and peripheral thickness measurements would enhance the versatility of the method by permitting lenses with various focal points and shapes to be made.

22. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fumiyoshi JP 4-046024 in view of Sato 5228894 and JP 63-310735.

23. Fumiyoshi in view of Sato et al does not teach claim 17. However, JP 63-310735 teaches a second concave molding surface having a radius of curvature greater than that of the first concave surface (JP 63-310735, Page 8, Column 2, lines 3-4).

24. It would have been prima facie obvious at the time the invention was made to combine JP 63-310735's molding surface radius of curvature qualification with Fumiyoshi's lens molding method because JP 63-310735's molding surface radius of curvature would enhance the versatility of the method by permitting lenses with various focal points and shapes to be made.

25. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fumiyoshi JP 4-046024 in view of Sato 5228894.

26. Fumiyoshi teaches the applicant's claimed invention. See the 103(a) rejection for Fumiyoshi's teaching. However, Fumiyoshi does not teach claim 20.

27. However, Sato et al teaches where the first mold comprises an upper mold and the second mold comprises a lower mold, following the molding pressure, a secondary pressure smaller than the molding pressure is applied (Sato, Figure 5, "Load on the upper mold" and "Load on the lower mold").

28. It would have been prima facie obvious at the time the invention was made to combine Sato et al's smaller secondary pressure with Fumiyoshi's lens molding method because both Fumiyoshi and Sato teach similar methods wherein the upper and lower molds are held at differing temperatures and using the second pressing step would permit the required degree of surface accuracy to be achieved for the lens as taught by Sato (col. 10, lines 65-68).

Conclusion

29. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

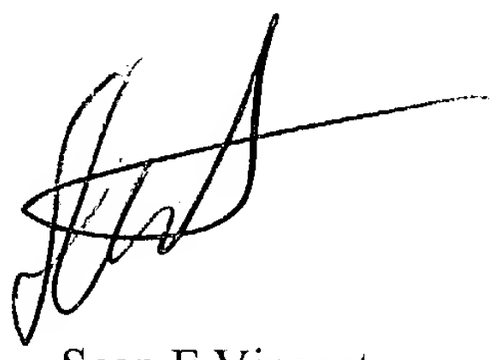
30. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

31. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean E Vincent whose telephone number is (571) 272-1194. The examiner can normally be reached on M - F (8:30 - 6:00).

32. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven P Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

33. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1700.



Sean E Vincent
Primary Examiner
Art Unit 1731

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